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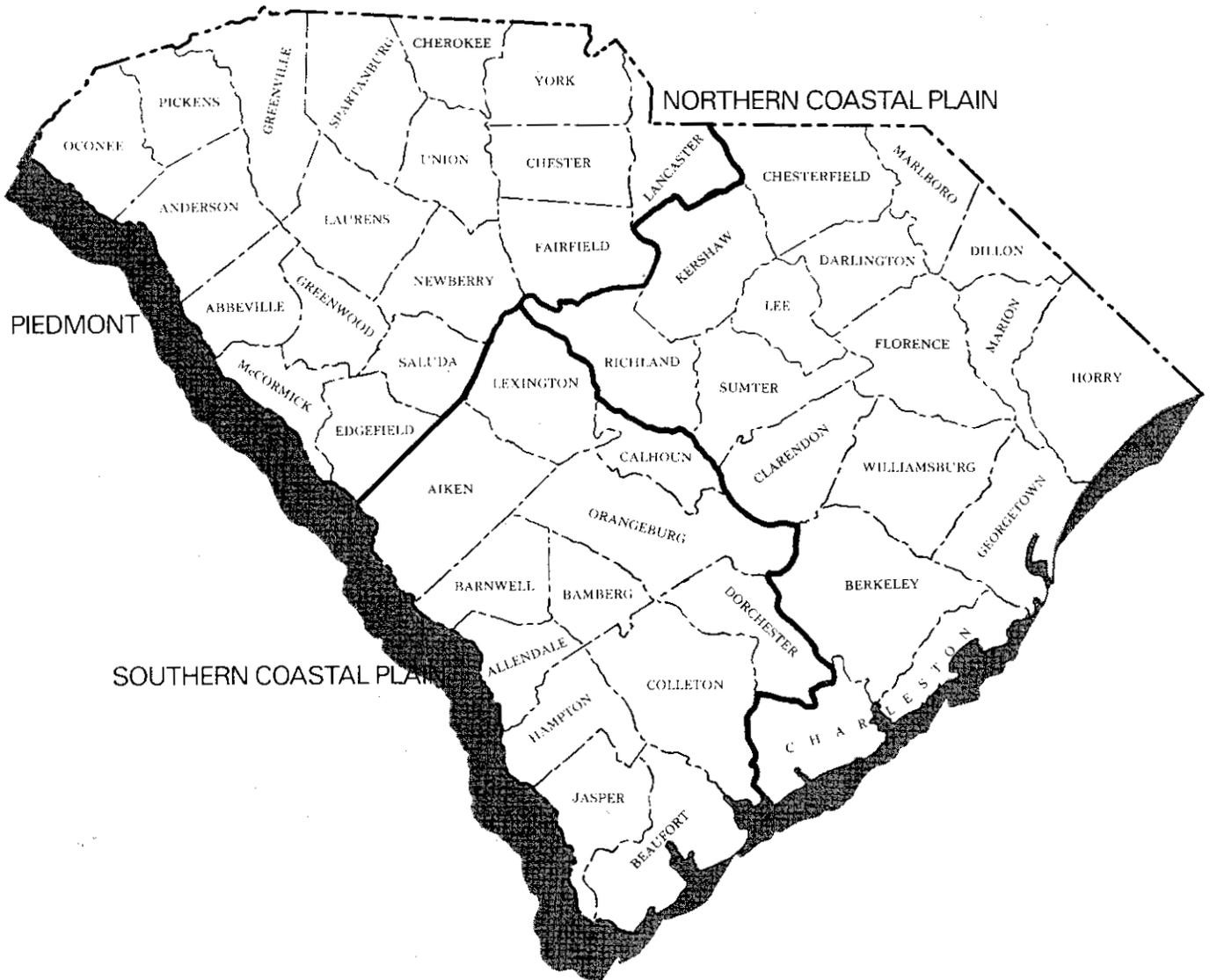


South Carolina's Timber Industry: An Assessment of Timber Product Output and Use, 1992

Southeastern Forest
Experiment Station

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Foreword

This report contains the findings of a 1992 canvass of all primary wood-using plants in South Carolina and presents changes in product output and residue use since 1991. It complements the Forest Inventory and Analysis periodic inventory of volume and removals from the State's timberland. The canvass was conducted to determine the amount and source of wood receipts and annual timber product drain by county in 1992 and to determine interstate and cross-regional movement of industrial roundwood. Only primary wood-using mills were canvassed. Primary mills are those that process roundwood in log or bolt form or as chipped roundwood. Examples of industrial roundwood products are saw logs, pulpwood, veneer logs, poles, and logs used for composite board products. Mills producing products from residues generated at primary and secondary processors were not canvassed. Trees chipped in the woods were included in the estimate of timber drain only if they were delivered to a primary domestic manufacturer.

A 100-percent canvass of all wood-processors in South Carolina was conducted in 1993 for 1992. Out-of-State mills known to be using logs or bolts harvested from South Carolina timberland were also contacted. Each mill was canvassed by mail or through personal contact at plant locations. Telephone

contacts followed mailed questionnaire responses when additional information or clarification of response was necessary. In the event of a nonresponse, data collected in previous surveys were updated by current data collected for mills of similar size, product type, and location. Surveys for all timber products other than pulpwood began in 1957 and are currently conducted every year.

Pulpwood production data were taken from an annual canvass of all southeastern pulpmills, conducted annually in cooperation with the American Pulpwood Association. Medium density fiberboard, insulating board, and hardboard plants were included in this survey.

The Southeastern Station gratefully acknowledges the cooperation and assistance provided by the South Carolina Division of Forestry, and the Cooperative Extension Service, Clemson University in collecting mill data and to forest industry and mill managers for providing timber products information. The information in this report is based on responses from 95 percent of mills operating in 1992: 9 pulpmills, 13 of the 14 veneer mills, 9 mills manufacturing other industrial products, and 74 of the 79 sawmills. They accounted for 92 percent of the 1992 mill receipts.

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Output of Industrial Timber Products

Timber production and the wood products industry ranks third in South Carolina behind textiles and chemical manufacturing in economic importance. According to the U.S. Department of Commerce, the forest industry provided jobs to more than 32,000 employees and had an annual payroll of \$622 million (U.S. Department of Commerce, Bureau of the Census 1985). Between 1991 and 1992, the combined output of industrial roundwood timber products and plant by-products increased nearly 15 percent to 0.8 billion cubic feet. Timber product output (TPO) from roundwood was up 74 million cubic feet to 582 million cubic feet. Output from plant byproducts increased 25 million cubic feet to 194 million cubic feet and accounted for one-fourth of total output (table 1). Output of softwood roundwood products increased 15 percent to 472 million cubic feet, 81 percent of South Carolina's total output of roundwood timber products. Hardwood roundwood production increased 13 percent to 110 million cubic feet.

Pulpwood and saw logs were the principal roundwood products in 1992. Combined output for these two

products amounted to 541 million cubic feet, 93 percent of the State's total roundwood output.

Saw Logs

Saw-log production in South Carolina accounted for 44 percent of the State's total roundwood products output in 1992. Since 1991, combined output of softwood and hardwood saw-log production was up 26 percent and totaled 257 million cubic feet, or more than 1.4 billion board feet. This production is equivalent to the volume of lumber needed to construct about 140,000 single-family homes. Output of softwood saw logs increased 30 percent since 1991 and totaled 232 million cubic feet (1.3 billion board feet). Hardwood saw-log production was up 4 percent to 26 million cubic feet (0.1 billion board feet). With saw-log production at more than 40 million cubic feet, hardwoods accounted for 28 percent in 1967 and 24 percent in 1978. In 1992, however, hardwoods only accounted for about 10 percent of the saw-log production (fig. 1). Southern yellow pine accounted for most of the softwood saw logs harvested in the State in 1992, while hard hardwoods (primarily oaks) made up 57 percent of the hardwood saw-log output.

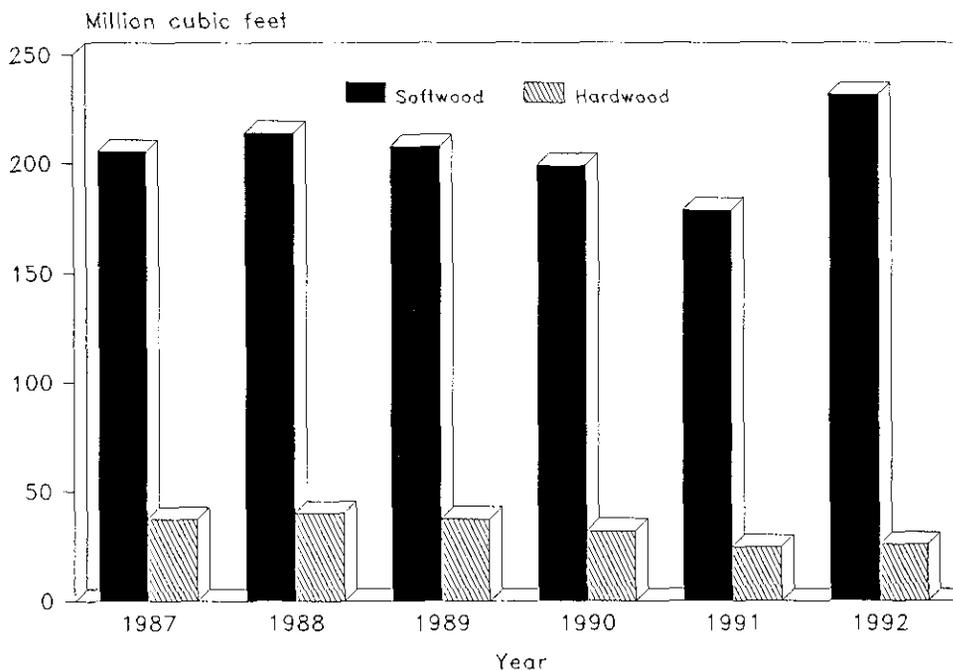


Figure 1—Roundwood saw-log production, by species group and year.

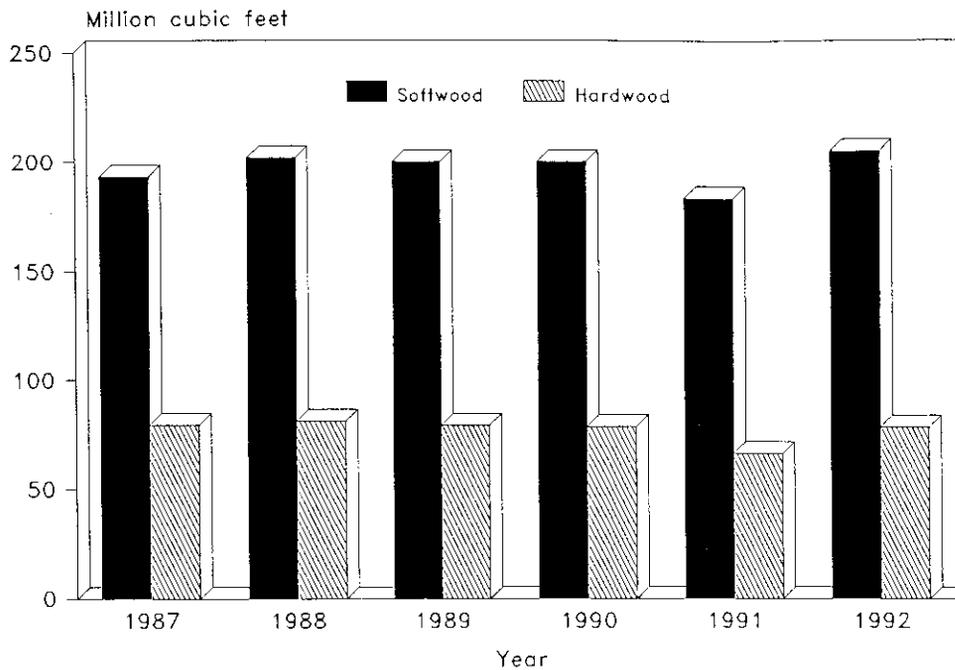


Figure 2—Roundwood pulpwood production, by species group and year.

Pulpwood

Pulpwood production accounted for 49 percent of the State's total roundwood output and was the leading roundwood product in South Carolina, as it has been since the early 1960's. Output of pulpwood (including chipped roundwood) increased from 250 million cubic feet (3.5 million cords) in 1991 to 284 million cubic feet (4.0 million cords) in 1992. Both softwood and hardwood output increased between 1991 (Johnson and Davenport 1993) and 1992. Softwood output increased by 12 percent to 205 million cubic feet, while hardwood output was up 19 percent to 79 million cubic feet. Since 1987, hardwood has provided nearly 30 percent of the total pulpwood production in South Carolina (fig. 2). Softwoods accounted for 72 percent of South Carolina's pulpwood production in 1992, about the same as in 1991.

Veneer Logs

Output of veneer logs in 1992 totaled 36 million cubic feet, a 31-percent decline since 1991. Veneer production accounted for about 6 percent of the State's total roundwood TPO in 1992. Output of softwood veneer logs dropped 34 percent to 30 million cubic feet (169 million board feet). In 1967, softwood veneer production amounted to less than 1 million cubic feet or only about 7 percent of total veneer production. By 1987, however, softwood veneer production had peaked at more than 56 million cubic feet and accounted for more than three-fourths of the veneer production (fig. 3). In 1992, softwoods accounted for about 83 percent of the State's veneer production, 3 percent less than in

1991. Output of hardwood veneer logs dropped 11 percent to 6 million cubic feet (39 million board feet). Southern yellow pine accounted for nearly all of the softwood roundwood harvested for veneer, while soft hardwoods (mostly yellow-poplar and sweetgum) accounted for 82 percent of the hardwood roundwood harvested for veneer.

Other Industrial Products

Roundwood harvested for other industrial uses such as poles, posts, mulch, firewood, and all other industrial products totaled 5 million cubic feet in 1992, a 51-percent increase since 1991. This large increase reflects a boost in production of roundwood exported to Georgia and North Carolina for other industrial products manufactured in those States. Softwoods made up all of the other industrial product volume. Roundwood used for other industrial products accounted for only about 1 percent of South Carolina's total TPO in 1992.

Number of Mills and Receipts

Total receipts at South Carolina mills, which include roundwood harvested and retained in the State and roundwood imported from other States, increased 9 percent to 580 million cubic feet (table 2). The number of primary roundwood-using plants in South Carolina increased from 108 in 1991 to 111 in 1992, a 3-percent increase (table 3). The number of primary manufacturers has remained relatively stable since 1988.

Sawmills. Between 1991 and 1992, the number of sawmills operating in South Carolina remained stable at 79 mills. Over the same period, total saw-log receipts increased 47 million cubic feet to 249 million cubic feet, a 24-percent increase since 1991. In 1992, sawmill receipts accounted for 43 percent of total receipts. Softwood saw-log receipts was up 26 percent to 221 million cubic feet, and hardwood receipts increased 6 percent to 28 million cubic feet. Yellow pine accounted for most of the State's total softwood saw-log receipts. For the 79 mills currently operating, 44 percent had receipts of less than 5 million board feet and accounted for 5 percent of total receipts. While 35 percent of the mills had receipts greater than 10 million board feet, these mills accounted for 87 percent of total receipts (table 4).

Pulpmills. Nine pulpmills were operating and receiving roundwood in 1992, the same as in 1991. The State's total pulpwood receipts were up by 6 percent to 295 million cubic feet, while the 24-hour pulping capacity for these mills increased from 10,683 tons (Howell 1993) to 11,693 tons (Miller 1994). Both softwood and hardwood pulpwood receipts increased between 1991 and 1992. Softwood receipts were up 4 percent to 216 million cubic feet, and hardwood receipts were up 10 percent to 78 million cubic feet. Softwoods accounted for nearly three-fourths of the pulpwood receipts. Receipts of round pulpwood in 1992 accounted for 51 percent of total receipts for all mills (table 5).

Veneer Mills. The number of veneer mills operating in South Carolina dropped from 15 to 14 between 1991 and 1992. At the same time, veneer receipts across the State dropped 15 million cubic feet, or about 33 percent, to 32 million cubic feet. Both softwood and hardwood receipts declined in 1992. Softwood veneer log receipts were down 38 percent to 25 million cubic feet, and hardwood veneer receipts were down 3 percent to 7 million cubic feet. All softwood veneer-log receipts were southern yellow pine. Soft hardwoods (yellow-poplar and sweetgum) made up the bulk of hardwood veneer receipts. Veneer accounted for 5 percent of South Carolina's total receipts for all products.

Other Industrial Mills. Since 1991, the number of plants producing other industrial products increased from five to nine. At the same time, receipts at the remaining mills totaled 5.3 million cubic feet, up nearly 700,000 cubic feet since 1991. Current facilities include seven pole mills and two post mills.

Roundwood Movement

Note: To follow the logic of this section, the reader must understand that certain terms—namely, production, retained, export, import, and receipts—have

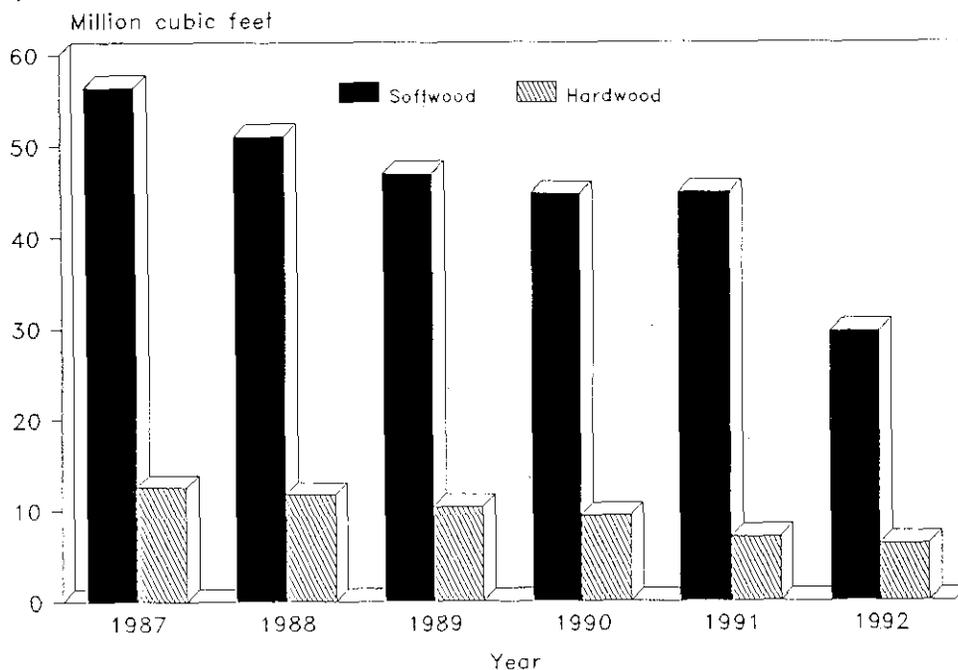


Figure 3—Roundwood veneer-log production, by species group and year.

specialized meanings and relationships unique to the Forest Inventory and Analysis Units across the country dealing with timber products output (fig. 4).

South Carolina was a net exporter of industrial roundwood. In 1992, the State retained 481 million cubic feet, or 83 percent of its production (table 6), compared to 81 percent in 1991. Imports from other States totaled 99 million cubic feet, a 16-percent decline from 1991. Exports to mills outside South Carolina amounted to 101 million cubic feet, up 6 percent. Exports of all softwood products exceeded imports by nearly 5 million cubic feet, while hardwood imports exceeded exports by more than 2 million cubic feet.

The volume of whole trees cut or trees chipped in the woods and delivered to chip facilities for export overseas is not included in the estimate of export volume or roundwood production. Most of this volume is hardwood chips destined for wood fiber companies in Japan, Korea, and Taiwan. The result is an underestimate of hardwood volume produced or exported from South Carolina. The volume of hardwood chips exported from Southern U.S. ports in 1992 was more than 3.0 million green metric tons, or about 89 million cubic feet (West 1993), compared with 1 million green metric tons in 1990 (Colquitt 1991). Resource analysts familiar with the export market in the State have indicated that roundwood from South Carolina contributed at least 300,000 green metric tons (8.5 million cubic feet) to the 1992 total, equivalent to about 7 percent of total hardwood production.

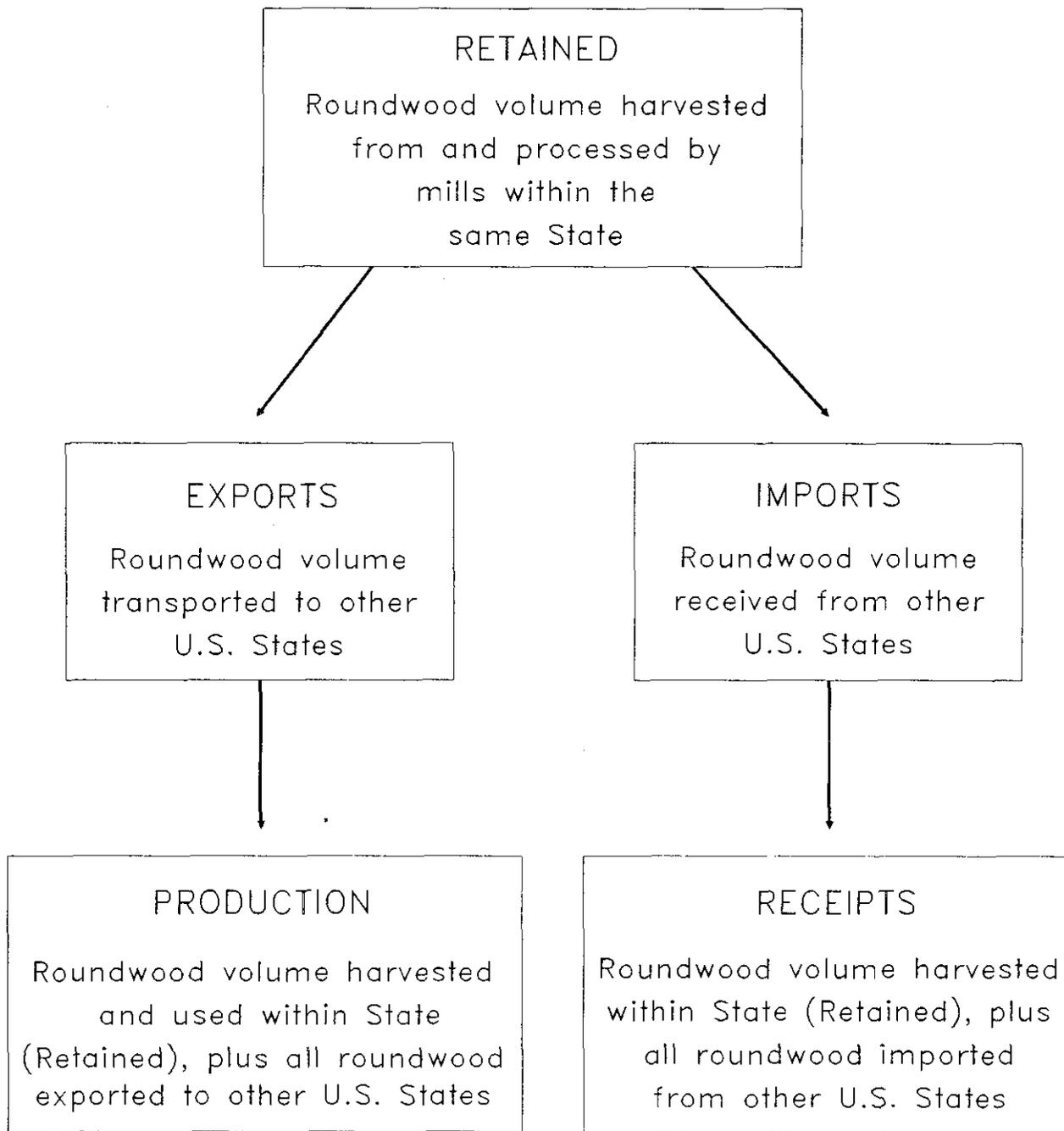
Roundwood pulpwood accounted for 65 percent of total known exports, as well as 77 percent of total imports (table 7). Round pulpwood imports amounted to 76 million cubic feet, or 10 million cubic feet more than was exported. Saw logs accounted for the next largest share, 18 percent, of the import total and accounted for 26 percent of the export total.

Saw Logs. South Carolina retained 90 percent of its saw-log production for domestic manufacture (table 8), about the same proportion reported in 1991. However, the State remains a net exporter of saw logs by a slim margin. Saw-log exports of 26 million cubic feet were divided among Georgia (71 percent), North Carolina (29 percent), and a negligible amount to Florida. Softwoods accounted for 93 percent of the saw-log exports. About 18 million cubic feet of saw logs were imported, with softwoods making up 76 percent of the imports. South Carolina mills received saw logs primarily from North Carolina (56 percent) and Georgia (44 percent), with negligible amounts from Kentucky, Mississippi, and Tennessee.

Veneer Logs. South Carolina retained 78 percent of its veneer-log production for processing at domestic veneer mills (table 9). Exports amounted to nearly 8 million cubic feet, while imports totaled 3 million cubic feet, making the State a net exporter of roundwood veneer logs. Veneer exports went to North Carolina (97 percent) and Georgia (3 percent). Softwoods accounted for 93 percent of the export volume. Sources of the imports were North Carolina (94 percent) and Georgia (6 percent).

Pulpwood. South Carolina retained 77 percent of the roundwood cut for pulpwood for processing at domestic pulpmills (table 10). Imports of 76 million cubic feet exceeded exports by 16 percent, making the State a net importer of pulpwood. Imports came from North Carolina (99 percent) and Georgia (1 percent). Exports of 66 million cubic feet went primarily to Georgia (55 percent), North Carolina (44 percent), Florida (1 percent), and a negligible amount to Louisiana.

Other Industrial. South Carolina was also a net importer of roundwood used for other industrial products, although by a very slim margin (table 11). Seventy-two percent of roundwood harvested for other industrial products was retained for processing within the State. All of the 1.5 million cubic feet imported was softwood and came from North Carolina (80 percent) and Georgia (20 percent). All of the 1.5 million cubic feet exported out of State was also softwood and went to Georgia (91 percent), North Carolina (8 percent), Florida (1 percent), and a negligible amount to Virginia.



Production = Retained + Exports

Receipts = Retained + Imports

Figure 4—Movement of roundwood exports and imports within the United States.

Plant Byproducts

In 1992, processing of primary products in South Carolina mills generated 195 million cubic feet of wood and bark residues (table 12). Coarse residues from all primary products amounted to 71 million cubic feet, while bark volume totaled 60 million cubic feet. Collectively, sawdust and shavings totaled 64 million cubic feet, or one-third of total residues. Of the mill residues generated, 85 percent came from softwoods and 15 percent came from hardwoods. More than 99 percent of the softwood and hardwood residues generated became products or industrial fuel (table 13). Nearly 65 million cubic feet, or 91 percent of the coarse residues, were used for fiber products, while 5 million cubic feet were used for industrial fuel. The remainder was used for sawn products, particleboard, and other miscellaneous products. Most of the bark was used for industrial fuel or other miscellaneous products. More than 70 percent of the sawdust and shavings was used for industrial fuel, 17 percent for particleboard, 10 percent for other miscellaneous products, and 2 percent for fiber products.

Saw Logs. In 1992, sawmills generated more than 139 million cubic feet of mill residues, accounting for 71 percent of total residues produced. About 95 percent of the 61 million cubic feet of coarse residues from saw logs was used for fiber products. Bark and sawdust generated amounted to more than 59 million cubic feet and were used mostly for industrial fuel and miscellaneous products. Shavings from dressed lumber totaled 19 million cubic feet. Half of the shavings was used for particleboard.

Veneer Logs. Veneer mills generated 19 million cubic feet of residues in 1992, 10 percent of the State's total primary mill residue volume. Nearly 91 percent of the 8 million cubic feet of coarse veneer residues was used for fiber products and particleboard. Sawdust and bark, totaling 11 million cubic feet, were used mostly for industrial fuel.

Pulpwood. Bark was the only residue associated with roundwood pulpwood. Bark volumes reported from the nine pulpmills in South Carolina totaled 30 million cubic feet; most was used for fuel by the same mills that produced it. Bark from roundwood pulpwood accounted for half of the total bark volume at all primary mills and 15 percent of the State's total residues produced.

Other Industrial. Residues of all types from other industrial products totaled 7 million cubic feet, 4 percent of South Carolina's total mill residue volume. Coarse residues of 2 million cubic feet were used mainly for industrial fuel. Bark residues, totaling 5 million cubic feet, were used mostly for industrial fuel and miscellaneous uses.

Regional Trends

Between 1991 and 1992, total output of industrial roundwood products increased across all regions of South Carolina; the Southern Coastal Plain Region had the largest increase, 22 percent. Output for all softwood products increased substantially in all regions, while output of all hardwood products was down only in the Piedmont Region. Changes in output varied considerably by product and by region; however, softwood accounted for 80 percent or more of industrial roundwood products in all regions.

Southern Coastal Plain Region

Roundwood output from the 12 counties of the Southern Coastal Plain Region totaled 174 million cubic feet in 1992, a 22-percent increase since 1991 (table 14). Both softwood and hardwood output totals increased for the region; softwood output was up nearly 22 percent and hardwood production was up 24 percent. Softwood veneer was the only product to show a decline in production in this region. Output of softwood veneer dropped 67 percent to 2 million cubic feet. Eighty-two percent of the total roundwood TPO was softwood; the largest proportion of any region in South Carolina.

The Southern Coastal Plain was the only region where saw-log production exceeded pulpwood production. Saw-log production increased 29 percent to 95 million cubic feet and accounted for 54 percent of the region's total roundwood output. This figure represents 37 percent of the State's total saw-log output. Pulpwood production of nearly 74 million cubic feet accounted for 42 percent of the region's total TPO and for 26 percent of the State's total roundwood pulpwood output. Total

vener production was reduced by nearly half to 4 million cubic feet, only 12 percent of the State's total veneer production. Thirty-nine percent of the State's other industrial products also came from this region. Of the 12 counties in this area, 3 had production greater than 20 million cubic feet, 6 had production between 10 and 20 million cubic feet, 3 had production between 5 and 10 million cubic feet (table 15). The Southern Coastal Plain Region had 34 primary wood-using plants operating during 1992, 3 more than in 1991: 21 sawmills, 6 veneer or plywood mills, 5 pole, and 2 post mills (fig. 5). These mills processed 30 percent of the State's total roundwood output.

Northern Coastal Plain Region

Roundwood output from the 16 counties of the Northern Coastal Plain Region totaled 213 million cubic feet in 1992, a 19-percent increase since 1991 (table 16). Both softwood and hardwood output totals increased for the region; softwood output was up by 18 percent and hardwood production was up 21 percent. Softwood and hardwood veneer and softwood used for other industrial products showed a decline in production in this region. Output of softwood veneer dropped 20 percent to 15 million cubic feet, and hardwood veneer dropped 28 percent to 2 million cubic feet. Eighty-one percent of the total roundwood TPO was softwood.

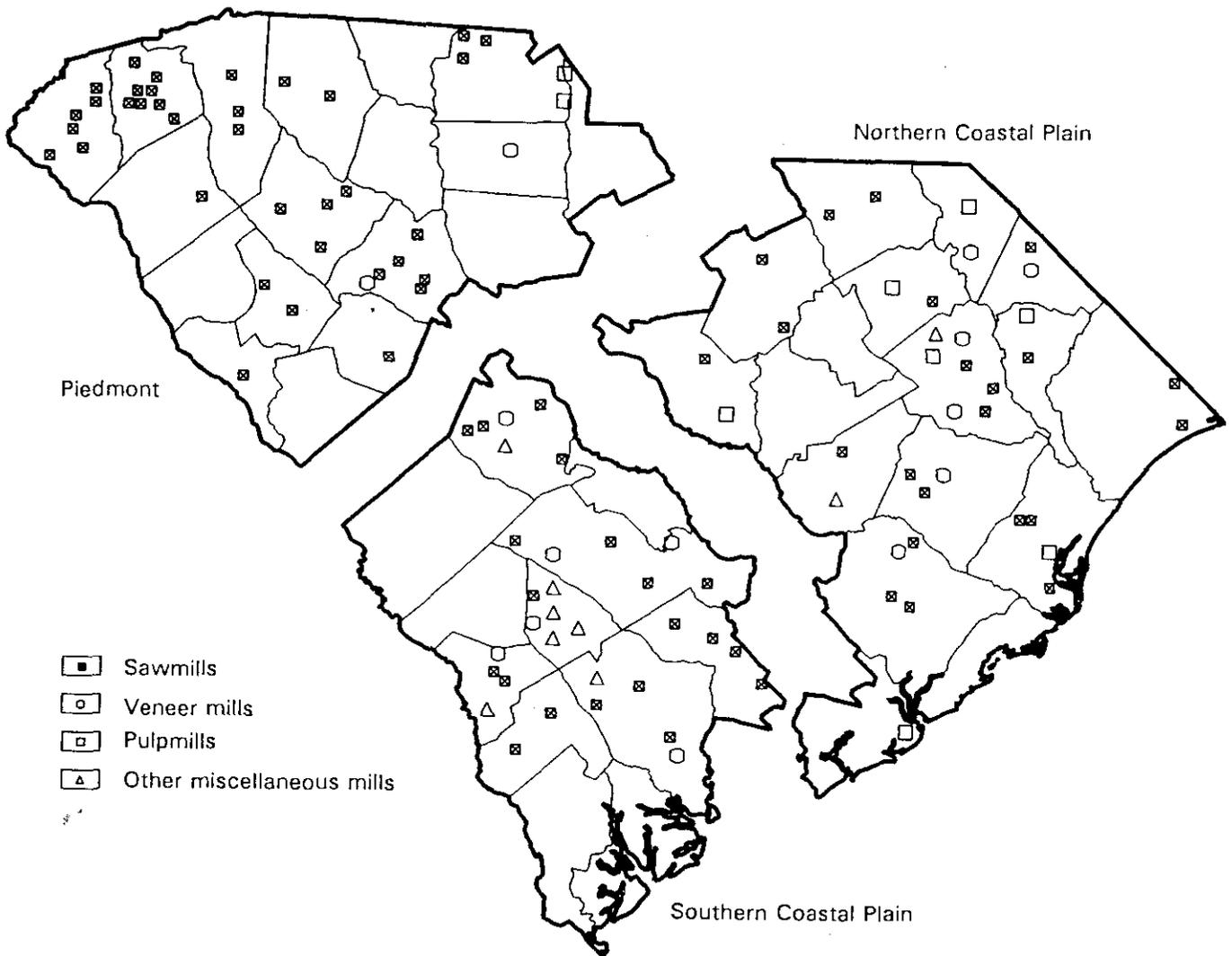


Figure 5—Primary wood-using mills by regions.

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Pulpwood was the leading product in the Northern Coastal Plain Region, which produced more pulpwood than any other region of the State. Pulpwood production of 106 million cubic feet accounted for half of the region's total TPO and for 37 percent of the State's total roundwood pulpwood output. Saw-log production for both softwoods and hardwoods was up nearly 19 percent to 88 million cubic feet. This figure represents 41 percent of the region's total roundwood output and 34 percent of the State's total saw-log output. Despite a 21-percent decline in total veneer production, more than 47 percent of the veneer logs harvested in South Carolina during 1992 came from the Northern Coastal Plain Region; in addition, 29 percent of the State's other industrial products came from this region. Of the 16 counties in this area, 3 had production greater than 20 million cubic feet, 6 had production between 10 and 20 million cubic feet, 6 had production between 5 and 10 million cubic feet, and only 1 had production less than 5 million cubic feet (table 17). The Northern Coastal Plain Region had 37 primary wood-using plants operating during 1992, the same as in 1991: 7 pulpmills, 22 sawmills, 6 veneer or plywood mills, 2 pole mills. These mills processed 37 percent of the State's total roundwood output.

Piedmont Region

In 1992, 195 million cubic feet of roundwood were produced in the 18 counties making up the Piedmont Region of South Carolina. This total reflects an increase of nearly 5 percent between 1991 and 1992 (table 18). The region ranks second in the State in the production of roundwood products, at 33 percent of the total output. Softwood production increased 6 percent and accounted for 80 percent of the total roundwood output. Hardwood output for all products declined 1 percent, with the largest production drop in pulpwood production.

Production of pulpwood was down by 3 percent to nearly 105 million cubic feet but still accounted for 54 percent of the region's total roundwood output. Total saw-log production was up 34 percent to 74 million cubic feet and accounted for 38 percent of the total roundwood production for this area. This region produced 29 percent of the State's saw logs, 41 percent of the veneer logs, 37 percent of the pulpwood, and 32 percent of the roundwood used for other industrial products. Nine counties in the 18-county area had production greater than 10 million cubic feet and 9 counties had production between 5 and 10 million cubic feet (table 19). The Piedmont Region had 40 primary wood-using plants operating in 1992, the same as in 1991: 2 pulpmills, 36 sawmills, and 2 veneer or plywood plants.

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Definitions

Board feet. Unit of measure applied to roundwood. It relates to lumber that is 1 foot long, 1 foot wide, and 1 inch thick (or its equivalent).

Composite panels. Consists of structural panels (oriented strand board or waferboard), particleboard (industrial underlayment, thin panelboard).

Consumption. The quantity of a commodity, such as pulpwood, utilized.

Drain. The volume of roundwood removed from any geographic area where timber is grown.

Exports. The volume of roundwood utilized by mills outside the State where timber was cut.

Industrial roundwood products. Any primary use of the main stem of a tree, such as saw logs, poles, pilings, veneer logs, pulpwood, posts, or cooperage logs.

Industrial fuelwood. A roundwood product, with or without bark, used to generate energy at a manufacturing facility such as a wood-using mill.

Imports. The volume of roundwood delivered to a mill or group of mills in a specific State but harvested from outside that particular area.

Plant residues. Wood material generated in the production of timber products at primary manufacturing plants.

Coarse residues. Suitable for chipping such as slabs, edgings, trim, veneer cores, and ends.

Fine residues. Not suitable for chipping such as sawdust, shavings, and veneer clippings.

Log. A primary forest product harvested in long, primarily 8-foot lengths.

Primary wood-using plants. Industries that receive roundwood or chips from roundwood for the manufacture of products such as veneer, pulp, and lumber.

Production. The total volume of roundwood harvested from land within the specified State, regardless of where consumed. Production is the sum of timber harvested and used within the State, plus all roundwood exported to other U.S. States.

Pulpwood. A roundwood product that will be reduced to individual wood fibers by chemical or mechanical means. The fibers are used to make a broad generic group of pulp products that includes paper products as well as chipboard, fiberboard, insulating board, and paperboard.

Receipts. The quantity or volume of industrial roundwood received at a mill or by a group of mills in a State, regardless of the geographic source. Volume of roundwood receipts is equal to the volume of roundwood retained in a State plus roundwood imported from other U.S. States.

Retained. Roundwood volume harvested from and processed by mills within the same State.

Roundwood. Logs, bolts, or other round sections cut from trees for industrial manufacture or consumer use.

Roundwood chipped. Any timber cut primarily for industrial manufacture, delivered to non-pulpmills, chipped, and then sold to pulpmills for use as fiber. Includes tops, jump sections, and whole trees.

Roundwood product drain. That portion of total drain used for a product.

Saw log. A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight, and with minimum diameter inside bark of 6 inches for softwoods and 8 inches for hardwoods.

Standard cord. A unit measure applied to roundwood, usually bolts or split wood. It relates to a stack of wood 4 feet high, 4 feet wide, and 8 feet long—encompassing 128 cubic feet of wood, bark, and air space. In South Carolina this usually translates to 74.9 cubic feet of solid wood for pulpwood, since pulpwood is more uniform.

Timber products output. Roundwood production in an area's forests (equals roundwood product drain).

Timber removals. The merchantable volume of trees removed from the timberland inventory by harvesting, cultural operations such as stand improvement, land clearing, or changes in land use.

Veneer log. Logs to be used in the production of plywood, finished panels, or veneer sheets, both rotary cut and sliced.

Conversion Factors*

Saw Logs

Softwood 0.18018 cubic foot = 1 board foot
 5.55 board feet = 1 cubic foot

Hardwood 0.16531 cubic foot = 1 board foot
 6.05 board feet = 1 cubic foot

Veneer Logs

Softwood 0.17493 cubic foot = 1 board foot
 5.72 board feet = 1 cubic foot

Hardwood 0.16050 cubic foot = 1 board foot
 6.23 board feet = 1 cubic foot

Pulpwood^b

Softwood 70.5 cubic feet/cord
Hardwood 70.5 cubic feet/cord

* Conversion factors vary with stem size (d.b.h.) and species. The factors shown are for trees of average diameters removed in South Carolina during the latest survey period.

^b Cubic feet of solid wood per cord.

Table 1--Output of industrial products, by product, and species group, South Carolina, 1991 and 1992

Product and species group	Year		Change	Percent change
	1991	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	178,816	231,538	+52,722	+29.5
Hardwood	24,559	25,519	+960	+3.9
Total	203,375	257,057	+53,682	+26.4
Veneer logs				
Softwood	44,917	29,643	-15,274	-34.0
Hardwood	7,017	6,238	-779	-11.1
Total	51,934	35,881	-16,053	-30.9
Pulpwood^a				
Softwood	183,394	205,596	+22,202	+12.1
Hardwood	66,262	78,661	+12,399	+18.7
Total	249,656	284,257	+34,601	+13.9
Composite panels				
Softwood	0	0	0	0
Hardwood	0	0	0	0
Total	0	0	0	0
Other industrial				
Softwood	3,489	5,267	+1,778	+51.0
Hardwood	0	0	0	0
Total	3,489	5,267	+1,778	+51.0
All industrial				
Softwood	410,616	472,044	+61,428	+15.0
Hardwood	97,838	110,418	+12,580	+12.9
Total	508,454	582,462	+74,008	+14.6
Byproduct output				
Softwood	143,188	165,240	+22,052	+15.4
Hardwood	26,398	28,992	+2,594	+9.8
Total	169,586	194,232	+24,646	+14.5
Total output				
Softwood	553,804	637,284	+83,480	+15.1
Hardwood	124,236	139,410	+15,174	+12.2
Total	678,040	776,694	+98,654	+14.5

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (18,397,000 cubic feet in 1991 and 10,850,000 cubic feet in 1992).

Table 2--Roundwood receipts, by product and species group, South Carolina, 1991 and 1992

Product and species group	Year		Change	Percent change
	1991	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	174,804	220,705	+45,901	+26.3
Hardwood	26,330	27,918	+1,588	+6.0
Total	201,134	248,623	+47,489	+23.6
Veneer logs				
Softwood	40,031	24,930	-15,101	-37.7
Hardwood	6,798	6,593	-205	-3.0
Total	46,829	31,523	-15,306	-32.7
Pulpwood*				
Softwood	207,159	216,309	+9,150	+4.4
Hardwood	71,130	78,275	+7,145	+10.0
Total	278,289	294,584	+16,295	+5.9
Composite panels				
Softwood	0	0	0	0
Hardwood	0	0	0	0
Total	0	0	0	0
Other industrial				
Softwood	4,648	5,330	+682	+14.7
Hardwood	0	0	0	0
Total	4,648	5,330	+682	+14.7
All industrial				
Softwood	426,642	467,274	+40,632	+9.5
Hardwood	104,258	112,786	+8,528	+8.2
Total	530,900	580,060	+49,160	+9.3

* Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (20,021,000 cubic feet in 1991 and 10,765,000 cubic feet in 1992).

Table 3-- Number of primary wood-using plants, by type of mill, South Carolina, 1967-1992

Type of mill	Year											
	1967	1973	1975	1977	1979	1981	1983	1985	1987	1989	1991	1992
Sawmills	239	152	133	119	128	117	113	118	99	87	79	79
Veneer mills	26	24	26	23	24	22	21	21	20	17	15	14
Pulpmills	5	6	7	7	7	7	8	8	8	8	9	9
Composite panel mills	0	0	0	0	0	0	0	0	0	0	0	0
Other mills	13	7	8	5	4	6	6	8	6	5	5	9
All plants	283	189	174	154	163	152	148	155	133	117	108	111

Table 4-- Roundwood receipts, by sawmill size, South Carolina, 1991 and 1992

Sawmill size class ^a (million board feet)	1991			1992		
	Number of mills	Thousand board feet	Percent of volume	Number of mills	Thousand board feet	Percent of volume
< 1.0	9	4,127	--	15	8,987	1
1.0 - 4.99	28	70,081	6	20	53,561	4
5.0 - 9.99	11	76,296	7	16	111,753	8
10.0 - 49.99	24	465,229	41	18	334,787	24
> 50	7	515,085	46	10	886,257	63
Total	79	1,130,818	100	79	1,395,345	100

-- = negligible.

^a Based on volume received as opposed to actual capacity.

Table 5--Roundwood receipts, by species and type of mill, South Carolina, 1992

Species	Type of mill					
	All mills	Sawmills	Veneer mills		Pulpmills ^a	Other mills
			Pine plywood	Other veneer		
<i>Thousand cubic feet</i>						
Softwood						
Yellow pine	250,912	220,652	8,832	16,098	NA	5,330
Other softwood	53	53	0	0	NA	0
Unclassified	216,309	0	0	0	216,309	0
Total softwoods	467,274	220,705	8,832	16,098	216,309	5,330
Hardwood						
Soft hardwoods	17,819	12,590	315	4,914	NA	0
Hard hardwoods	16,692	15,328	207	1,157	NA	0
Unclassified	78,275	0	0	0	78,275	0
Total hardwoods	112,786	27,918	522	6,071	78,275	0
All species	580,060	248,623	9,354	22,169	294,584	5,330

NA = not applicable.

^a Only collected by softwood and hardwood and includes roundwood chipped.

Table 6--Industrial roundwood movement, by year and species group, South Carolina, 1991 and 1992

Year	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>Thousand cubic feet</i>					
SOFTWOOD					
1991	410,616	72,005	338,611	88,031	426,642
1992	472,044	77,906	394,138	73,136	467,274
HARDWOOD					
1991	97,838	23,502	74,336	29,922	104,258
1992	110,418	23,558	86,860	25,926	112,786
ALL SPECIES					
1991	508,454	95,507	412,947	117,953	530,900
1992	582,462	101,464	480,998	99,062	580,060

Table 7--Industrial roundwood movement, by product and species group, South Carolina, 1992

Product and species group	Production	Exported to other States	Retained	Imported from other States	Receipts
<i>Thousand cubic feet</i>					
Saw logs					
Softwood	231,538	24,523	207,015	13,690	220,705
Hardwood	25,519	1,857	23,662	4,256	27,918
Total	257,057	26,380	230,677	17,946	248,623
Veneer logs					
Softwood	29,643	7,141	22,502	2,428	24,930
Hardwood	6,238	578	5,660	933	6,593
Total	35,881	7,719	28,162	3,361	31,523
Pulpwood^a					
Softwood	205,596	44,757	160,839	55,470	216,309
Hardwood	78,661	21,123	57,538	20,737	78,275
Total	284,257	65,880	218,377	76,207	294,584
Composite panels					
Softwood	0	0	0	0	0
Hardwood	0	0	0	0	0
Total	0	0	0	0	0
Other industrial					
Softwood	5,267	1,485	3,782	1,548	5,330
Hardwood	0	0	0	0	0
Total	5,267	1,485	3,782	1,548	5,330
All products					
Softwood	472,044	77,906	394,138	73,136	467,274
Hardwood	110,418	23,558	86,860	25,926	112,786
Total	582,462	101,464	480,998	99,062	580,060

^a Includes roundwood chipped.

Table 8—Saw-log volume, by destination, source, and species group, South Carolina, 1992

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
South Carolina (retained)	230,677	207,015	23,662
Exports to:			
Florida	56	56	0
Georgia	18,632	18,510	122
North Carolina	7,692	5,957	1,735
Total	26,380	24,523	1,857
Imports from:			
Georgia	7,897	6,012	1,885
Kentucky	34	0	34
Mississippi	34	0	34
North Carolina	9,947	7,678	2,269
Tennessee	34	0	34
Total	17,946	13,690	4,256

Table 9—Veneer volume, by destination, source, and species group, South Carolina, 1992

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
South Carolina (retained)	28,162	22,502	5,660
Exports to:			
Georgia	203	0	203
North Carolina	7,516	7,141	375
Total	7,719	7,141	578
Imports from:			
Georgia	193	0	193
North Carolina	3,168	2,428	740
Total	3,361	2,428	933

Table 10—Pulpwood volume, by destination, source, and species group, South Carolina, 1992^a

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
South Carolina (retained)	218,377	160,839	57,538
Exports to:			
Florida	884	870	14
Georgia	36,207	20,082	16,125
Louisiana	222	222	0
North Carolina	28,567	23,583	4,984
Total	65,880	44,757	21,123
Imports from:			
Georgia	1,025	236	789
North Carolina	75,182	55,234	19,948
Total	76,207	55,470	20,737

^a Includes roundwood chipped that was delivered to non-pulpmills and then chipped and sold to pulpmills.

Table 11—Other industrial volume, by destination, source, and species group, South Carolina, 1992^a

Destination and source	Species group		
	All species	Softwood	Hardwood
	<i>Thousand cubic feet</i>		
South Carolina (retained)	3,782	3,782	0
Exports to:			
Florida	19	19	0
Georgia	1,343	1,343	0
North Carolina	118	118	0
Virginia	5	5	0
Total	1,485	1,485	0
Imports from:			
Georgia	316	316	0
North Carolina	1,232	1,232	0
Total	1,548	1,548	0

^a Includes poles, posts, mulch, firewood, log homes, charcoal, and all other industrial mills.

Table 12--Primary mill residue volume, by roundwood type, species group, and residue type, South Carolina, 1992

Roundwood type and species group	Residue type				
	All types	Bark	Coarse	Sawdust	Shavings
<i>Thousand cubic feet</i>					
Saw logs					
Softwood	123,698	19,131	54,154	31,838	18,575
Hardwood	15,595	3,052	6,653	5,583	307
Total	139,293	22,183	60,807	37,421	18,882
Veneer logs					
Softwood	14,864	2,243	6,508	6,113	0
Hardwood	4,495	739	1,847	1,909	0
Total	19,359	2,982	8,355	8,022	0
Pulpwood					
Softwood	20,670	20,670	0	0	0
Hardwood	9,034	9,034	0	0	0
Total	29,704	29,704	0	0	0
Composite panels					
Softwood	0	0	0	0	0
Hardwood	0	0	0	0	0
Total	0	0	0	0	0
Other industrial^a					
Softwood	7,036	4,796	2,240	0	0
Hardwood	0	0	0	0	0
Total	7,036	4,796	2,240	0	0
Total					
Softwood	166,268	46,840	62,902	37,951	18,575
Hardwood	29,124	12,825	8,500	7,492	307
Total	195,392	59,665	71,402	45,443	18,882

^a Includes poles, pilings, posts, and other industrial products.

Table 13--Disposal of residue at primary wood-using plants, by product, species group, and type of residue, South Carolina, 1991 and 1992

Product and species group	All types		Bark		Coarse		Sawdust		Shavings	
	1991	1992	1991	1992	1991	1992	1991	1992	1991	1992
<i>Thousand cubic feet</i>										
Fiber products										
Softwood	50,088	58,293	0	0	49,647	57,060	0	1,101	441	132
Hardwood	8,878	7,564	0	0	8,790	7,564	0	0	88	0
Total	58,966	65,857	0	0	58,437	64,624	0	1,101	529	132
Particleboard										
Softwood	8,020	11,894	0	0	0	906	469	1,760	7,551	9,228
Hardwood	238	197	0	0	0	0	0	0	238	197
Total	8,258	12,091	0	0	0	906	469	1,760	7,789	9,425
Composite panels										
Softwood	0	0	0	0	0	0	0	0	0	0
Hardwood	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Sawn products										
Softwood	5,421	217	0	0	5,421	217	0	0	0	0
Hardwood	2,094	95	0	0	2,094	95	0	0	0	0
Total	7,515	312	0	0	7,515	312	0	0	0	0
Fuel										
Softwood	68,506	83,043	29,030	40,372	1,872	4,502	32,057	32,269	5,547	5,900
Hardwood	13,984	19,761	6,049	11,899	1,005	727	6,814	7,034	116	101
Total	82,490	102,804	35,079	52,271	2,877	5,229	38,871	39,303	5,663	6,001
Miscellaneous										
Softwood	11,153	11,793	4,093	5,632	34	184	2,726	2,675	4,300	3,302
Hardwood	1,204	1,375	763	894	70	45	336	427	35	9
Total	12,357	13,168	4,856	6,526	104	229	3,062	3,102	4,335	3,311
Not used										
Softwood	91	1,028	2	836	76	33	13	146	0	13
Hardwood	192	132	22	32	63	69	107	31	0	0
Total	283	1,160	24	868	139	102	120	177	0	13
All products										
Softwood	143,279	166,268	33,125	46,840	57,050	62,902	35,265	37,951	17,839	18,575
Hardwood	26,590	29,124	6,834	12,825	12,022	8,500	7,257	7,492	477	307
Total	169,869	195,392	39,959	59,665	69,072	71,402	42,522	45,443	18,316	18,882

Table 14--Roundwood timber products output, by product and species group, Southern Coastal Plain of South Carolina, 1991 and 1992

Product and species group	Year		Change	Percent change
	1991	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	65,981	86,938	+20,957	+31.8
Hardwood	7,473	7,660	+187	+2.5
Total	73,454	94,598	+21,144	+28.8
Veneer logs				
Softwood	5,671	1,852	-3,819	-67.3
Hardwood	2,148	2,428	+280	+13.0
Total	7,819	4,280	-3,539	-45.3
Pulpwood^a				
Softwood	44,677	52,393	+7,716	+17.3
Hardwood	15,615	21,096	+5,481	+35.1
Total	60,292	73,489	+13,197	+21.9
Composite panels				
Softwood	0	0	0	0
Hardwood	0	0	0	0
Total	0	0	0	0
Other industrial				
Softwood	1,232	2,053	+821	+66.6
Hardwood	0	0	0	0
Total	1,232	2,053	+821	+66.6
All industrial				
Softwood	117,561	143,236	+25,675	+21.8
Hardwood	25,236	31,184	+5,948	+23.6
Total	142,797	174,420	+31,623	+22.1

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (6,231,000 cubic feet in 1991 and 4,976,000 cubic feet in 1992).

Table 15 – Roundwood timber products output, by county, product and species group, Southern Coastal Plain of South Carolina, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood ^a		Other Industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
<i>Thousand cubic feet</i>												
Aiken	15,016	1,822	7,951	303	18	154	0	0	6,579	1,365	468	0
Allendale	5,325	2,266	3,561	1,037	0	151	0	0	1,563	1,078	201	0
Bamberg	9,866	1,910	6,428	516	0	210	0	0	3,306	1,184	132	0
Barnwell	12,974	2,303	9,086	480	0	293	0	0	3,616	1,530	272	0
Beaufort	3,984	1,123	2,060	350	0	0	0	0	1,834	773	90	0
Calhoun	5,176	863	2,054	18	697	21	0	0	2,395	824	30	0
Colleton	18,100	2,974	11,857	805	0	318	0	0	6,107	1,851	136	0
Dorchester	13,215	2,458	6,848	211	348	169	0	0	5,927	2,078	92	0
Hampton	15,044	5,692	8,632	2,065	0	464	0	0	6,201	3,163	211	0
Jasper	17,491	2,047	12,831	645	0	9	0	0	4,486	1,393	174	0
Lexington	10,965	1,529	6,725	224	92	26	0	0	4,072	1,279	76	0
Orangeburg	16,080	6,197	8,905	1,006	697	613	0	0	6,307	4,578	171	0
All counties	143,236	31,184	86,938	7,660	1,852	2,428	0	0	52,393	21,096	2,053	0

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (4,976,000 cubic feet in 1992).

Table 16--Roundwood timber products output, by product and species group, Northern Coastal Plain of South Carolina, 1991 and 1992

Product and species group	Year		Change	Percent change
	1991	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	66,924	81,629	+14,705	+22.0
Hardwood	7,427	6,541	-886	-11.9
Total	74,351	88,170	+13,819	+18.6
Veneer logs				
Softwood	19,054	15,293	-3,761	-19.7
Hardwood	2,414	1,739	-675	-28.0
Total	21,468	17,032	-4,436	-20.7
Pulpwood^a				
Softwood	59,166	74,795	+15,629	+26.4
Hardwood	22,897	31,474	+8,577	+37.5
Total	82,063	106,269	+24,206	+29.5
Composite panels				
Softwood	0	0	0	0
Hardwood	0	0	0	0
Total	0	0	0	0
Other industrial				
Softwood	1,739	1,533	-206	-11.8
Hardwood	0	0	0	0
Total	1,739	1,533	-206	-11.8
All industrial				
Softwood	146,883	173,250	+26,367	+18.0
Hardwood	32,738	39,754	+7,016	+21.4
Total	179,621	213,004	+33,383	+18.6

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (5,949,000 cubic feet in 1991 and 3,094,000 cubic feet in 1992).

Table 17--Roundwood timber products output, by county, product and species group, Northern Coastal Plain of South Carolina, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood ^a		Other Industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
<i>Thousand cubic feet</i>												
Berkeley	7,884	1,177	1,975	325	697	0	0	0	5,212	852	0	0
Charleston	5,070	542	2,194	5	348	0	0	0	2,481	537	47	0
Chesterfield	10,859	4,553	4,087	405	0	43	0	0	6,772	4,105	0	0
Clarendon	5,840	2,015	3,367	507	348	49	0	0	2,125	1,459	0	0
Darlington	7,080	1,898	4,013	136	803	169	0	0	2,071	1,593	193	0
Dillon	6,013	2,337	2,313	658	1,281	71	0	0	2,226	1,608	193	0
Florence	12,541	4,832	8,089	1,755	1,071	435	0	0	3,167	2,642	214	0
Georgetown	20,164	2,192	9,027	2	1,046	84	0	0	9,867	2,106	224	0
Horry	21,716	3,121	12,801	616	2,633	129	0	0	5,924	2,376	358	0
Kershaw	14,957	2,596	2,851	114	0	44	0	0	12,106	2,438	0	0
Lee	4,036	624	2,143	0	0	0	0	0	1,893	624	0	0
Marion	12,352	3,997	8,307	668	1,779	169	0	0	2,105	3,160	161	0
Marlboro	10,179	2,130	4,225	452	2,227	214	0	0	3,696	1,464	31	0
Richland	10,247	2,339	4,701	327	1,310	248	0	0	4,236	1,764	0	0
Sumter	3,749	2,095	1,834	207	0	2	0	0	1,915	1,886	0	0
Williamsburg	20,563	3,306	9,702	364	1,750	82	0	0	8,999	2,860	112	0
All counties	173,250	39,754	81,629	6,541	15,293	1,739	0	0	74,795	31,474	1,533	0

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (3,094,000 cubic feet in 1992).

Table 18—Roundwood timber products output, by product and species group, Piedmont of South Carolina, 1991 and 1992

Product and species group	Year		Change	Percent change
	1991	1992		
<i>Thousand cubic feet</i>				
Saw logs				
Softwood	45,911	62,971	+17,060	+37.2
Hardwood	9,659	11,318	+1,659	+17.2
Total	55,570	74,289	+18,719	+33.7
Veneer logs				
Softwood	20,192	12,498	-7,694	-38.1
Hardwood	2,455	2,071	-384	-15.6
Total	22,647	14,569	-8,078	-35.7
Pulpwood^a				
Softwood	79,551	78,408	-1,143	-1.4
Hardwood	27,750	26,091	-1,659	-6.0
Total	107,301	104,499	-2,802	-2.6
Composite panels				
Softwood	0	0	0	0
Hardwood	0	0	0	0
Total	0	0	0	0
Other industrial				
Softwood	518	1,681	+1,163	+224.5
Hardwood	0	0	0	0
Total	518	1,681	+1,163	+224.5
All industrial				
Softwood	146,172	155,558	+9,386	+6.4
Hardwood	39,864	39,480	-384	-1.0
Total	186,036	195,038	+9,002	+4.8

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (6,217,000 cubic feet in 1991 and 2,780,000 cubic feet in 1992).

Table 19 – Roundwood timber products output, by county, product and species group, Piedmont of South Carolina, 1992

County	All products		Saw logs		Veneer logs		Composite board		Pulpwood ^a		Other Industrial	
	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood	Softwood	Hardwood
<i>Thousand cubic feet</i>												
Abbeville	5,995	2,307	2,909	315	3	40	0	0	2,522	1,952	561	0
Anderson	3,218	1,979	1,853	1,369	0	40	0	0	804	570	561	0
Cherokee	5,350	1,060	887	118	0	0	0	0	4,463	942	0	0
Chester	9,886	2,263	2,172	248	2,272	337	0	0	5,442	1,678	0	0
Edgefield	12,784	2,161	7,039	0	37	0	0	0	5,557	2,161	151	0
Fairfield	14,544	2,131	4,826	0	2,438	386	0	0	7,280	1,745	0	0
Greenville	6,410	3,582	1,345	1,798	840	160	0	0	4,225	1,624	25	0
Greenwood	8,455	2,515	5,526	407	1,143	168	0	0	1,761	1,940	0	0
Lancaster	7,248	2,211	1,761	157	3	0	0	0	5,484	2,054	0	0
Laurens	11,592	2,935	5,180	1,210	1,495	170	0	0	4,917	1,555	0	0
McCormick	10,875	1,847	8,667	335	37	0	0	0	2,089	1,512	82	0
Newberry	16,789	2,712	6,927	408	649	29	0	0	9,012	2,275	201	0
Oconee	4,704	2,387	1,941	1,224	0	40	0	0	2,763	1,123	0	0
Pickens	4,030	2,797	2,002	1,766	0	40	0	0	2,028	991	0	0
Saluda	7,400	689	3,426	135	92	26	0	0	3,782	528	100	0
Spartanburg	9,913	3,298	2,693	866	822	177	0	0	6,398	2,255	0	0
Union	9,093	1,034	3,125	169	897	194	0	0	5,071	671	0	0
York	7,272	1,572	692	793	1,770	264	0	0	4,810	515	0	0
All counties	155,558	39,480	62,971	11,318	12,498	2,071	0	0	78,408	26,091	1,681	0

^a Includes roundwood that was delivered to non-pulpmills and then chipped and sold to pulpmills (2,780,000 cubic feet in 1992).



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Johnson, Tony G. 1994. South Carolina's timber industry: an assessment of timber product output and use, 1992. Resour. Bull. SE-147. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 25 p.

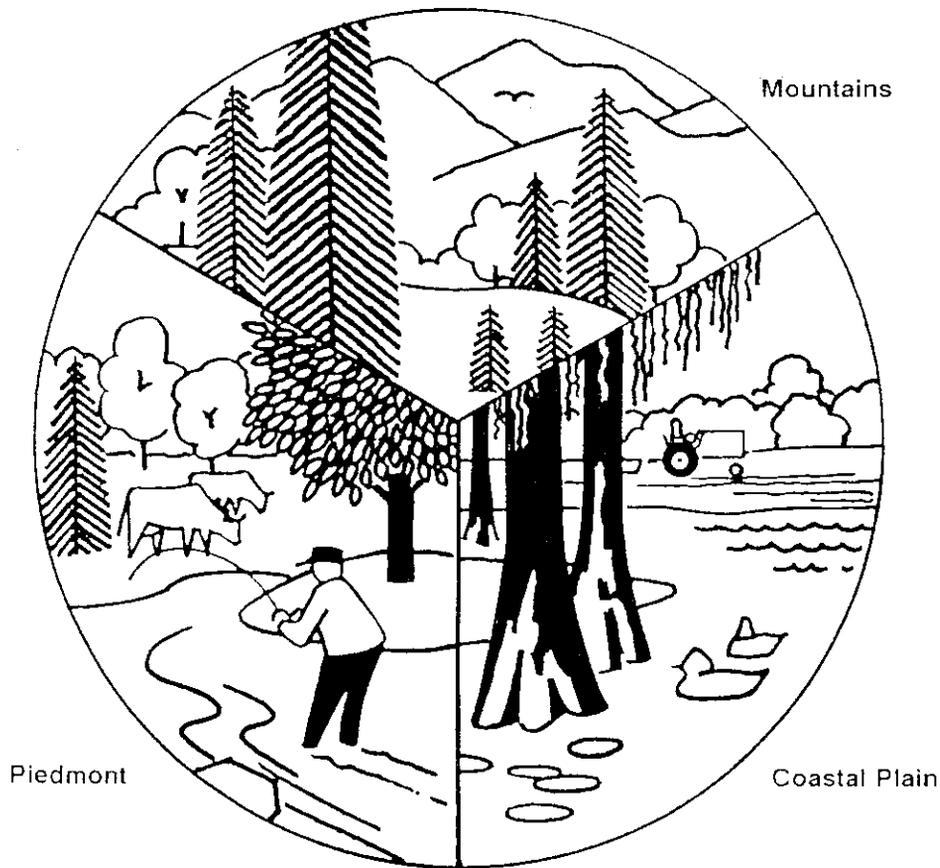
In 1992, volume of roundwood products removed from South Carolina's forests totaled 582 million cubic feet—15 percent more than in 1991. Mill byproducts generated from primary manufacturers increased 15 percent to 195 million cubic feet. Almost all of the plant residues were used, mostly for fuel and fiber products. Pulpwood was the leading roundwood product at 284 million cubic feet; saw logs ranked second at 257 million cubic feet; veneer logs were third with 36 million cubic feet. The number of primary processing plants increased from 108 in 1991 to 111 in 1992. Total receipts increased 9 percent to 580 million cubic feet.

KEYWORDS: Roundwood, residues, pulpwood, saw logs, veneer logs, wood movement.

Johnson, Tony G. 1994. South Carolina's timber industry: an assessment of timber product output and use, 1992. Resour. Bull. SE-147. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station. 25 p.

In 1992, volume of roundwood products removed from South Carolina's forests totaled 582 million cubic feet—15 percent more than in 1991. Mill byproducts generated from primary manufacturers increased 15 percent to 195 million cubic feet. Almost all of the plant residues were used, mostly for fuel and fiber products. Pulpwood was the leading roundwood product at 284 million cubic feet; saw logs ranked second at 257 million cubic feet; veneer logs were third with 36 million cubic feet. The number of primary processing plants increased from 108 in 1991 to 111 in 1992. Total receipts increased 9 percent to 580 million cubic feet.

KEYWORDS: Roundwood, residues, pulpwood, saw logs, veneer logs, wood movement.



Southeastern Forest Experiment Station

Established 1921

The Southeastern Forest Experiment Station, headquartered in Asheville, North Carolina, is one of the eight regional Experiment Stations, and the Forest Products Laboratory, that make up the Forest Service research organization.

RESEARCH MISSION:

To acquire the knowledge, develop the technology, and disseminate the research findings required to manage the Southeast's forest resources in ways that satisfy demands of goods and services while maintaining a quality environment.

RESEARCH LOCATIONS:

Blacksburg, VA
 Research Triangle Park, NC
 Franklin, NC
 Clemson, SC
 Charleston, SC
 Athens, GA
 Macon, GA
 Olustee/Gainesville, FL

EXPERIMENTAL FORESTS:

Chipola, Marianna, FL
 Holt Walton, Vienna, GA
 Coweeta, Otto, NC
 Bent Creek, Asheville, NC
 Santee, Moncks Corner, SC
 Scull Shoals, Athens, GA
 Hitchiti, Juliette, GA
 Olustee, Olustee, FL